

Research Letter

Key words: incidence: celiac disease; prevalence; serologic tests

To the editor:

The diagnosis rates of coeliac disease differ substantially between countries¹. Intriguingly, there has been recent evidence from Olmstead County, USA and Finland that in the last 5-10 years incidence has plateaued or even declined^{2, 3}. In most populations the prevalence also varies widely, serological prevalence from 0% to 1.87% and clinical prevalence from 0.9 to 12.9 per 100000¹. Understanding of why this variation exists is minimal, yet one of the key aspects governing incidence rates of any disease are “health system drivers”, such as the availability and use of diagnostic tests. We previously reported rising incidence rates of coeliac disease⁴ from 1990 to 2011 with inequality by deprivation in the UK. Although national guidance on recognition and diagnosis of coeliac disease published in 2009⁵ suggested widening the patient groups that should be tested for coeliac disease, NHS financial constraints could have hindered implementation of these guidelines. Indeed in the USA it has been observed that over the period 2000-2010 there was a marked decrease in treated prevalence of many diseases alongside a sustained period of reduced spending on health care⁶.

We used the UK Clinical Practice Research Datalink GOLD (Independent Scientific Advisory Committee approval 16_130) to estimate the European (EUROSTAT EU-27 plus EFTA 2013 population⁷) age-standardized incidence rates of coeliac disease⁸ 2005-2015 and the corresponding rates of serological testing (Anti-Tissue Transglutaminase antibody (TTG) and anti-Endomysial antibody (EMA)) for the disease. We used Joinpoint analysis⁹ to examine statistical evidence of changes in the rates of diagnosis and testing during this period. We

Incidence of coeliac disease

- 1 estimated coeliac disease point prevalence based on all contributing patients at 30th June 2015
- 2 and estimated incidence rate ratios (IRR) using Poisson regression for testing and incidence
- 3 rates.
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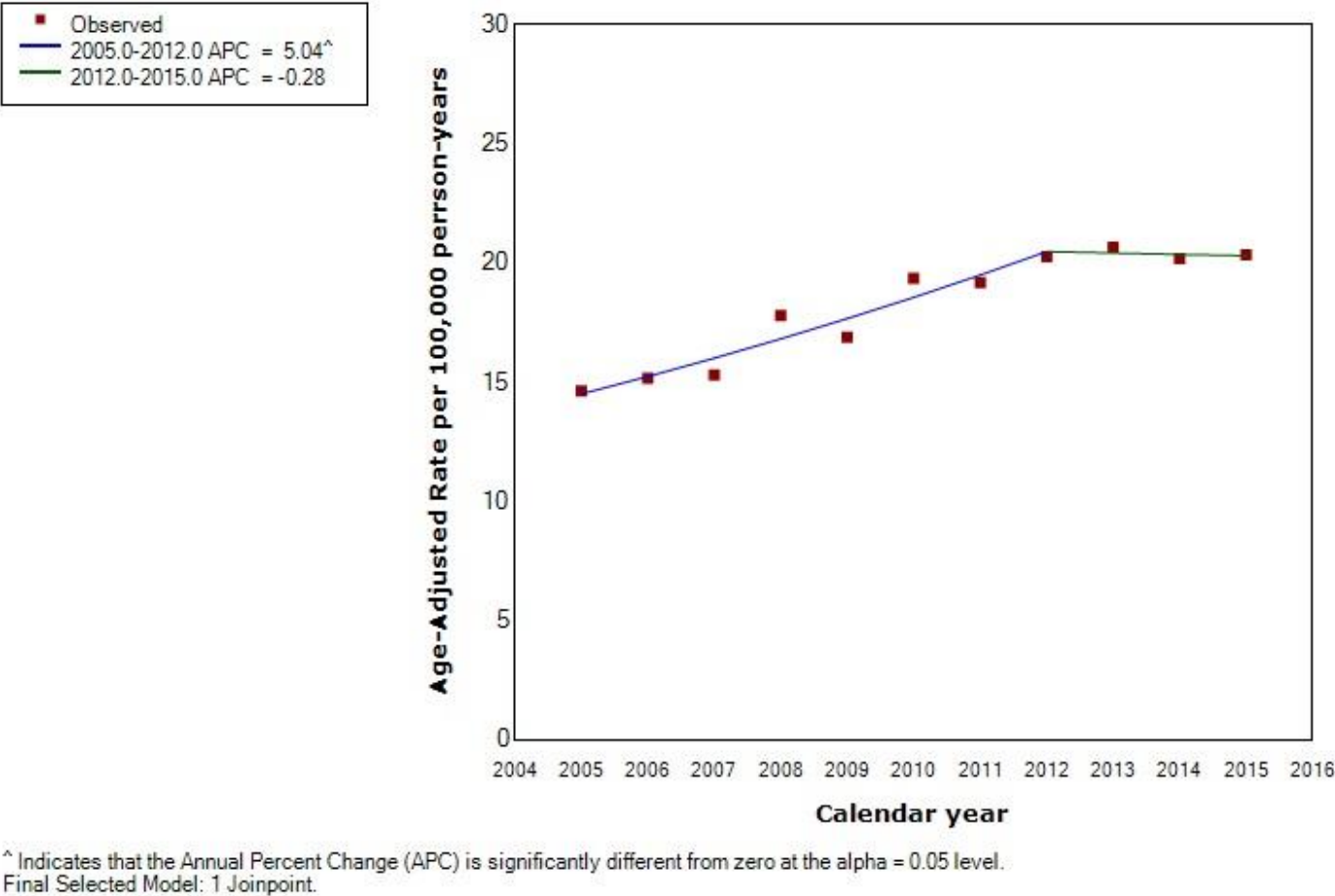
1 There were 8177 incident cases of coeliac diseases diagnosed among 45,539,211 million person
2 years. The overall incidence rate between 2005 and 2015 was 18 per 100,000 person years,
3 serological testing rate was 118 per 100,000 person years and point prevalence on the 30th June
4 2015 was 0.30% (95% CI 0.30-0.31). Incidence rates of coeliac disease were highest in people
5 aged between 60 and 69 years (23 per 100,000 person-years) whereas the rate of serological
6 testing was highest in those aged 20-29 (233 per 100,000 person-years). For the calendar period
7 2005-2015 there was an increase in European age-standardized incidence rates from 2005
8 until 2012 and then a plateauing effect (figure 1). Serological testing increased and then
9 decreased during the same period (figure 2). Joinpoint analysis identified that there were changes
10 in the rates of both diagnosis and testing at 2012.

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1 In this study we found that European age-standardized rates of diagnosis of coeliac disease and
2 serological testing have, since 2011, respectively plateaued and declined, while prevalence
3 increased from 0.24%⁴ to 0.3%.

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5 This could be because since 2010 the UK NHS has been operating under a period of financial
6 austerity. While health funding has been forecast to grow 1.2 per cent in real terms between
7 2009/10 and 2020/21 this is below the long-term average increases in health spending of
8 approximately 4 per cent a year since the NHS was established in 1948¹⁰. Alternatively,
9 clinicians based in primary care could be carrying out more targeted use of testing in certain age
10 or at-risk groups, leading to an overall reduction in testing. We may have missed some tests
11 carried out in secondary care as we did not have access to these. We found some evidence that
12 testing did vary by age, disproportionately to disease incidence, in that the highest testing rate
13 was in those aged 20-29 yet the highest incidence rate was in the 60-69 year old group. Finally, it
14 is possible that following several years of increasing diagnosis rates prior to 2011⁴ that the
15 threshold of clinically identifiable coeliac disease in the UK has been reached and a steady-state
16 incidence rate obtained.

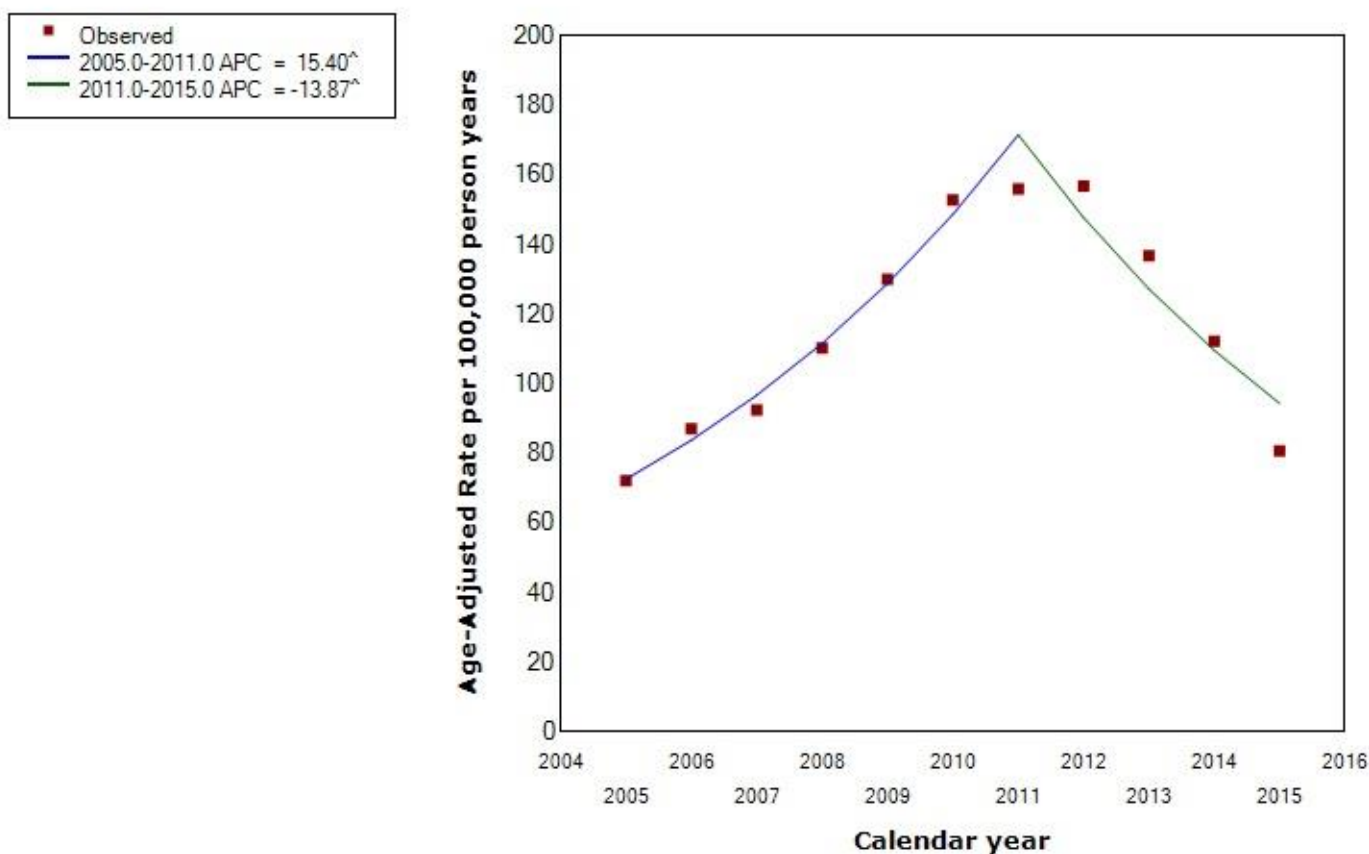
1 **Figure Legends.**
2 Figure 1. European age-standardized incidence rates of coeliac disease per 100,000 person- years



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Incidence of coeliac disease

1 Figure 2. European age-standardized serological testing rates per 100,000 person-years (TTG
2 and EMA) for coeliac disease



^ Indicates that the Annual Percent Change (APC) is significantly different from zero at the alpha = 0.05 level.
Final Selected Model: 1 Joinpoint.

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